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DEPARTMENT OF THE ARMY
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AMC REGULATION
NO. 5-9

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Management

METHODS AND STANDARDS (M&S) PROGRAM

Local supplementation of this regulation requires prior approval from the Director, U.S. Army Materiel Command Management Engineering Activity, (AMCMEA) ATTN: AMXME-I, Huntsville AL 35805-5906.

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*This regulation supersedes DARCOM-R 5-9, 7 April 1978, including all changes and AMCP 5-3, March 1973 and DARCOM-R 5-1, 12 July 1978.

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CHAPTER 1

GENERAL

1-1. Purpose. This regulation prescribes policies, responsibilities, and procedures for developing, implementing, utilizing, maintaining, and reviewing the Methods and Standards (M&S) Program in the U.S. Army Materiel Command (AMC).

1-2. Scope. a. This regulation applies to Headquarters (HQ), AMC; U.S. Army Materiel Command Management Engineering Activity (AMCMEA); and AMC major subordinate commands (MSC), including subordinate installations, activities, and AMC employees assigned to Government-owned, contractor-operated facilities.

b. Paragraphs 1-8e and 1-8f further define specific application to MSCs.

1-3. References. Appendix A lists required and related publications, as well as prescribed and referenced forms.

1-4. Definitions. The glossary explains abbreviations and terms used in this regulation and enumerates related terms applicable to the M&S Program as contained in Department of Defense (DOD) Directive 5010.31, DOD Instructions 5010.15-1-M, 5010.34, 5010.37, and Army Regulations (AR) 5-20, 310-25, 570-4, 570-5.

1-5. Background. The AMC M&S Program implements DOD Directive 5010.31 and DOD Instruction 5010.34. The DOD Efficiency Review (ER) Program established in 1982 includes all DOD noncontractible surveys not susceptible to coverage by the Commercial Activities (CA) Program (OMB A-76 and AR 5-20). Resulting work measurement standards developed by the AMC M&S Program are used to develop Army Industrial Fund budget input to manpower surveys, and to develop manpower staffing standards under the manpower staffing standards system (MS-3) program. The AMC has M&S programs established in three MSCs: U.S. Army Armament, Munitions and Chemical Command (AMCCOM); U.S. Army Depot System Command (DESCOM); and U.S. Army Test and Evaluation Command (TECOM).

1-6. Objectives. The objective of the AMC M&S Program is to increase productivity through--

a. The development of work measurement standards, which will serve as the basis for work center performance measurement, resource evaluation systems, and formulating budgetary requirements. The direct labor operations of these standards will involve manufacturing, maintenance, modification, rebuild/overhaul, inspection, and/or supply and ammunition operations.

b. The use of these standards or standards assimilated into higher summary level standards for input to the MS-3 (AR 570-5) development effort and to establish productivity indicators.

c. The increased efficiency and economy in the use of resources to include manpower, equipment, facilities, materials, and funds by improvements in methods, procedures, layout, and working conditions.

1-7. Policies and general procedures. M&S activities will--

a. Establish work measurement standards using appropriate industrial/management engineering techniques per chapter 2. Use these standards as management indicators to measure the efficiency and effectiveness of work performed and resources applied to all AMC functions and activities having functional areas which are characterized by repetitive operations and a stable work force (e.g., industrial, maintenance, and base operations-type functions). Methods improvement studies are an integral part of the M&S Program and will be performed before establishing and revising work measurement standards.

b. Develop a documented M&S plan of action (POA).

(1) The MSCs may use the DD Form 2048, Work Measurement Plan and Schedule [RCS DD-I&L (AR) 1296, (figure 1-1)], with attachments as appropriate to document their POAs. The DOD 5010.15-1-M, Standardization of Work Measurement, beginning on page A-VI-97, contains instructions for preparation of this form.

(a) Establish the goal for category (CAT) I standards coverage at 80 percent of the measurable universe of those functions that can be economically covered by engineered (CAT I) standards. When economically feasible, the timeframe goal for upgrade of CAT II standards to CAT I standards is 2 years.

(b) Plan at least one-half of the M&S analysts' efforts for development and/or review of CAT I and II standards and methods analysis.

(c) Reflect current and planned coverage by function, organization, Army management structure code, point account, and end item

code showing the measurable hours currently covered and the hours remaining which require coverage by CAT I and CAT II standards. In addition, the POA will specify the planned utilization of M&S analysts.

(2) The MSC subordinate installations may use the following references as a possible basis for the development of the POA:

- (a) A preliminary feasibility study.
- (b) Projects, programs, or contracts scheduled in the coming year.
- (c) Requests for M&S assistance from work center supervisors.
- (d) Requirements to review/validate existing standards.

(3) The applicable MSCs will submit a copy of each subordinate installation's POA for the coming year for coordination to the Director, AMCMEA, ATTN: AMXME-I, by 30 November of the plan year.

c. Establish individual employee labor and production (L&P) data input procedures. Supervisors may combine this data for each employee on a local form for their work center where automated, real time L&P reporting systems do not exist. The procedures require the existence of an audit trail for each work unit count. Supervisors will use this to monitor and determine the accuracy of production reporting. Where automated systems exist, require individual employee reporting and do not permit combined inputs. The internal production and time reporting system should also meet the following basic minimum requirements:

- (1) Account for all assigned hours to include loaned/borrowed hours at each work/cost center level.
- (2) Provide a mechanism for reporting production counts of work units of each reporting level.
- (3) Be capable of summarization at each succeeding level of work/cost center organization. This summarization includes end item counts, if feasible, and the total hours worked in each cost center as well as the earned hours to calculate performance efficiency (PE) (see definition in the glossary).
- (4) Support other internal and external reporting requirements.

d. Emphasize, at all installations, the requirement for accurate reporting of L&P data, including the proper reporting of nonproductive hours.

(This means, for instance, that a work center, which utilizes a large portion of its production labor force for cleanup in preparation for a visiting dignitary, will report these hours expended as nonproductive.)

e. Calculate work center PE in those work centers where an appropriate labor and production reporting system, staffing formulas, or work measurement standards exist. The following procedures apply in using the PE:

(1) Use PEs within the work center for planning and control purposes and to serve as the basis for problem area evaluation in the work center. Ranges for PE of 90 to 110 percent for CAT I and 80 to 120 percent for CAT II standards and facilities engineering standards (see Technical Bulletin 420-1 through 420-32) are also established as acceptable ranges for PE tolerances.

(2) Review standards used to calculate a performance efficiency that have been consistently out-of-tolerance, as soon as possible. The functional manager should have lead responsibility in resolving out-of-tolerance PE issues in his work area with assistance from the installation M&S organization. An inaccurate standard is only one possible cause of out-of-tolerance PEs. Out-of-tolerance conditions can be a result of many factors requiring a number of different organizations involved in the solution. The potential areas for improvement include the following items:

(a) Inadequate resources (e.g., technical data, tooling, and equipment, or facilities).

(b) Inadequate material support (e.g., no parts, poor parts movement, or rob-back).

(c) Technical problems (e.g., procedures and methods, or technique sensitivity).

(d) Personnel (e.g., improper skill mix, insufficient training, learning curve, or poor supervision).

(3) Maintain documentation showing the results of analyses of out-of-tolerance PEs at the work center level, and any corrective actions taken.

(4) Communicate to inspection and audit groups that out-of-tolerance PEs for operation (op) code level standards over short timeframes are not, in themselves, a reportable finding.

f. Not subject work centers and/or organizational entities covered by work measurement standards to organizational staffing, equipment, layout, or procedural changes without prior coordination with the M&S staff.

g. At a minimum, staff M&S organizations using the following guidance:

(1) Ensure incumbents of the spaces allocated to the M&S Program pursue full time M&S activities, and that they are assigned to the Resource Management functional area.

(2) Determine requirements for supervisory and administrative personnel staff separately on the basis of workload and other criteria, in support of M&S analyst.

(3) Require the following minimum training as qualification for an M&S analyst position:

(a) The U.S. Army Management Engineering College (AMEC) Defense Work Methods and Standards Course before measuring work and setting standards; the Defense Work Measurement and Standard Time Data Course before utilizing standard time data in setting standards; the Engineered Performance Standards for Facilities Engineering and Estimating Course before setting facilities engineering maintenance standards; or equivalent training and experience.

(b) Pace-rate training before conducting a time study.

(4) Allocate manpower spaces for the M&S Program from presently available and planned resources.

h. Implement a modified M&S Program where the size of the organization is such that the use of a full-time work measurement analyst is not justified by workload and the cost of establishing engineered standards will not be offset by resulting benefits. The following actions implement this program:

(1) Develop work measurement standards utilizing statistical standards, man-hour allowances (staffing patterns and staffing guides), technical estimates, or staffing formulas resulting from MS-3 studies.

(2) Install a man-hour accountability and production reporting and control system for the purposes of controlling the organization's resources and for use in problem evaluation.

(3) Assign a qualified work measurement analyst part-time to implement and maintain a M&S Program.

(4) In lieu of the above actions, an MSC may appoint the M&S organization at one installation to support M&S activities at another installation, activity, or location.

i. Structure data developed from the M&S Program for integration with other systems providing managers at all levels of supervision with required

quantitative information for planning and control purposes, for summarization in determining manpower and resource requirements, and for use in manpower surveys and MS-3 studies. An integrated concept presupposes close and continuing collaboration of manpower management, work planning and control, accounting, and budget personnel.

j. Support all developed work measurement standards by appropriate documentation per chapter 2. Maintain this documentation for reference and audit. As part of the audit trail, also maintain documentation supporting any change or modification to a standard.

k. Assign responsibility for the M&S program to the Resource Management functional area.

l. Base periodic evaluation of M&S programs on guidance found in chapter 3.

1-8. Responsibilities. a. The Deputy Chief of Staff for Resource Management, HQ AMC, will provide staff guidance concerning the use of labor standards for manpower management and resource projection.

b. The Director, AMCMEA will--

(1) Serve as the single manager for implementing and carrying out the provisions of DOD Directive 5010.31 and DOD Instruction 5010.34.

(2) Provide staff supervision over the development, implementation, maintenance, and utilization of the products of the M&S Program in the management of command resources, in the assimilation into MS-3 studies, and for justifying manpower requirements during manpower surveys.

(3) Formulate and disseminate M&S policies and guidelines.

(4) Provide staff supervision and guidance concerning the use of work measurement time standards in resource management systems.

(5) Provide industrial/management engineering guidance and consultation services in the establishment, operation, and maintenance of M&S programs per guidance provided in chapter 2 of this regulation to AMC MSCs; to separate installations and activities reporting directly to HQ AMC; and to other Department of the Army (DA) agencies and commands, as required.

(6) Provide M&S Program evaluation and review guidance to MSCs, separate installations, and activities in accordance with specified evaluation procedures contained in paragraph 3-4.

(7) Participate as a team member in DOD reviews of other services, as required, and DOD reviews made of HQ AMC.

c. The Director, AMEC, will--

(1) Provide DOD-wide program support within the parameters and limitations imposed by DOD Directive 5010.31 and DOD Instruction 5010.34.

(2) Provide training capability for resident and onsite courses and orientation in M&S in connection with DOD, DA, AMC, and MSC program requirements.

(3) Provide required coordination and logistical support for M&S training and orientation to achieve M&S Program objectives.

(4) Support HQ AMC staff and Director, AMCMEA, as requested, within available resources, for research, consultation services, and special projects in connection with the AMC M&S Program.

(5) Provide industrial/management engineering advice and general consultation services to AMC MSCs; separate installations; and activities; HQ AMC; other DA agencies on an as-required basis, within available resources.

d. The Commanders of AMCCOM, DESCOM, and TECOM will--

(1) Implement and administer a M&S Program for their subordinate installations, as prescribed by DOD, DA, and AMC regulations.

(2) Monitor the M&S Program through the analysis and evaluation of performance data and provide data to HQ AMC, as required.

(3) Conduct M&S Program evaluation review to include all subordinate installations at least every 2 years to identify and reduce problem areas and to assist in improving M&S management and productivity.

(4) Conduct a M&S workshop at least once every 2 years to bring MSC M&S program managers and M&S functional managers up to date on M&S initiatives and policy changes, to exchange ideas, to resolve general problems, and to establish goals.

(5) Encourage the sharing of work measurement automation and other technological capabilities between MSCs, major commands, or other DOD components.

e. Commanders of the other MSCs will implement the provisions of this regulation based on the criteria defined in paragraph 1-7a.

f. Commanders of subordinate installations/activities will--

(1) Implement and administer the M&S Program per guidance provided in this regulation, supplemental regulations, and other guidance from HQ AMC and their MSCs.

(2) Monitor M&S Program data to assure its validity, acceptance, and utilization as a tool for managing subordinate installation/activity resources.

(3) Submit all data required by higher authority to the MSC in a timely manner.

1-9. Reporting. The MSC HQ will forward the following reports or documents to the Director, AMCMEA, ATTN: AMXME-I.

a. The annual M&S POA from each installation per paragraph 1-7b.

b. Documented and validated savings which result from the application of the M&S Program, semiannually.

c. A copy of the M&S Program Review Report (RCS exempt: AR 335-15, para 5-2e(7)) resulting from any M&S Program review/evaluation as described in chapter 3, which the MSC has conducted. Forward this report within 45 days after the review. The MSCs and their installations will forward copies of subsequent responses as they occur.

METHOD OF APPROACH AND ASSIGNMENT OF ANALYSIS

AREAS	PLANNED COVERAGE	METHOD OF APPROACH							MAN-HOUR AND STAFFING PATTERN
		ENGINEERED					NON-ENGINEERED		
		STANDARD TIME DATA	P-15 UNTERMINED TIME DATA	TIME STUDY	WORK SAMPLING	TECHNICAL ESTIMATE	STATISTICAL		
0	P	q	r	s	t	u	v	w	

SAMPLE

1-10

CHAPTER 2

ESTABLISHMENT, MAINTENANCE, REVIEW, AND VALIDATION OF WORK
MEASUREMENT STANDARDS

2-1. Purpose. This chapter establishes policies and procedures relative to the establishment, maintenance, review, and validation of work measurement standards.

2-2. Scope. This chapter applies to all MSCs (including their subordinate installations) which have established or are required to establish an M&S Program.

2-3. Policies. a. The MSCs should encourage the exchange of standard time data between installations. Standards which may have application at other installations should be submitted to the Defense Industrial Resources Support Office in accordance with instructions in DOD 5010.15-1-M, Standardization of Work Measurement, Basic Volume. This exchange would be facilitated by the establishment of MSC work measurement standard data bases at the MSC level. Prior to setting engineered standards, installations will utilize these data bases to verify that a standard has not been developed by another installation for a similar item or operation. If a needed standard already exists in a data base, the MSCs will analyze and validate it for use, either in its entirety, or in elements. Installations should compare time standards and adopt factors which contribute to a more efficient operation.

b. Qualified work measurement personnel will document, develop, review, and validate all work measurement standards, regardless of category; the one exception to this policy is the acceptance of initial man-hour estimates provided by Production Planning and Control (PP&C) organizations. Only qualified M&S analysts (no PP&C personnel) assigned to the Directorate of Resource Management M&S organization will input time standards to automated or manual standards index files except as noted in paragraph 2-3d below. Facilities Engineering organizations will develop engineered performance standards for facilities engineering functions to meet the requirements of the work measurement system.

c. Methods improvement studies to improve operations and reduce work content are an integral part of a good work measurement system. The M&S analysts will conduct a methods improvement study prior to the establishment of any CAT I standard. In addition, we recommend this type study during reviews of standards.

d. The PP&C organizations may NOT manipulate or disregard established CAT I or CAT II standards in favor of a standard of their own design for any reason. To maintain the integrity of the standard, only a work measurement analyst will adjust a standard. Initial man-hour technical estimates from PP&C organizations are acceptable by M&S as CAT II-E standards and they can load them to the standards index file without the need for validation or documentation by M&S personnel. However, M&S personnel will upgrade these estimates to CAT I or CAT II standards within 2 years from the initial date of the estimate, if possible. Subsequent changes to man-hour estimates will require the following minimum documentation: Description of the work required and method being followed, a time estimate for each element in the operation, and reason for the requested change. Disseminate and coordinate this policy with PP&C organizations.

e. The work measurement standard may include rework (recycle) which cannot be eliminated, is inherent in the repair process, and is not the result of some action/inaction by the repair technician. Inclusion of rework must be based on observation and study, the occurrence factor, and allowable time added to the standard as a step or suboperation within a specific operation.

f. The M&S organization will review active standards where significant activity exists and performance efficiency is out-of-tolerance as described in paragraph 1-7e or upon formal request by work center supervisors. Revise work measurement time standards when evidence indicates that changes have occurred to--

- (1) Methods, procedures, or technical orders.
- (2) Tools, jigs, or fixtures.
- (3) Work place or work layout.
- (4) Specified materials.
- (5) Work content of the job.
- (6) Occurrence factors.
- (7) Methods improvements.
- (8) Personal fatigue and delay allowance.

g. Insufficient time allowed or low performance efficiency are not acceptable reasons, in themselves, to warrant a revision to a work measurement standard. However, these may be reasons for further investigations.

2-4. Procedures. a. A methods improvement study will include a clear description of the work installation/layout, the work unit under consideration, the method employed, process charts (old and new method), and a comparison of the old and new method. Validation of savings resulting from the methods improvements studies will be per appendix B. The M&S personnel will coordinate methods improvement study efforts with ER personnel to avoid duplication of effort.

b. M&S analysts will use the following procedures in obtaining concurrences on work measurement standards developed:

(1) The work center supervisor will concur in the method description of the work before the measurement and computation of the standard and its application.

(2) The M&S analyst will coordinate all work measurement standards with affected work center supervisors or managers after development of the standard.

(3) Coordinating offices will have 5 working days to express in writing reasons for nonconcurrence. No reply after 5 work days constitutes a declaration that the standard has been coordinated and is acceptable.

c. The supervisor will report to the M&S organization any proposed or implemented improvement or deviation from the approved method, conditions, layout, or equipment used.

d. Supervisors will monitor performance and will take appropriate action when performance is not within established tolerance parameters. Supervisors will maintain documentation relating to this action.

e. Work center supervisors will submit DD Form 2038, Request for Review of Work Measurement Standard (figure 2-1), to the M&S organization for those work measurement standards that they wish reviewed. The M&S organization will establish and maintain a log of all DD Forms 2038, and will use DD Form 2039, Standards Review Checklist (figure 2-2), to verify completion of the review/validation process. Consider this log in preparation of the POA and as a means of quantifying the M&S organization backlog.

f. Program managers for the various productivity programs; i.e., Value Engineering, Quality Circles, Capital Investment, will notify the M&S organization of the impact of their activities on current procedures or methods.

g. Category I (CAT I) standards.

(1) Define engineered standards as the time required by a trained worker, or a group of trained workers, working at a normal pace, to produce a described unit of work, of an acceptable quality, according to the prescribed method under specific working conditions. Develop engineered standards by the use of time studies, rated work sampling, predetermined time systems, standard time data, computerized techniques, or group timing technique (GTT). Engineered time standards require, as a minimum, a statistical reliability (accuracy) of ± 10 percent with a confidence level of 90 percent. Classify operation level time standards as engineered time standards when at least 80 percent of the prorated elements normal times meet CAT I standards requirements. In addition, support all engineered standards by the following minimum documentation:

(a) A record of the standard practice, to include work place layout, as applicable, and a statement that you used the most efficient method at the time the standard was developed. In addition, include a record of the quality level established, and a statement of conditions. The record should be in sufficient detail to allow future reviewers to recreate the steps the original developer used.

(b) A record of the methods study performed prior to measurement.

(c) A statement of the personnel skill level required for the tasks; i.e., qualified welder, machinist, electrician.

(d) A record of the observed, synthesized, and/or pre-determined time values used in determining the standard time.

(e) A record of computations used to determine the statistical reliability of the standard except when using predetermined time standards.

(f) A record of rating or leveling factors.

(g) Explanation of allowances used.

(h) A record of standard time computations.

(i) Date established, reviewed, and/or revised.

(j) A narrative covering method used, personnel contacted, and other information required to combine (a) through (i) into a logical information package.

(2) As an example, the normal pace will be equal to that of walking at 3 miles per hour on a smooth, level surface. Common benchmarks for normal or standard pace include walking at 3 miles per hour on a level surface, walking at 3.57 miles per hour (e.g., the methods-time-measurement systems), dealing a deck of cards into four piles in 30 seconds, or the speed shown on a particular subframe of a multi-image film loop. Standards based on a person walking at 3 miles per hour will not be equivalent to those based on walking at 3.57 miles per hour.

(3) A standard is nonengineered if it does not meet the criteria of paragraph 2-4g.

h. Category II (CAT II) (Statistical Standards/Technical Estimates). Nonengineered standards which provide an estimate of the amount of time required by a trained worker, or a group of trained workers, working at a normal pace, to produce a described unit of work, of an acceptable quality, according to the prescribed method under specific working conditions, developed by statistical analysis, M&S validated technical estimates, or nondocumented technical estimates. Do not include annual, sick, holiday, and/or administrative leave in any of the categories.

REQUEST FOR REVIEW OF WORK MEASUREMENT STANDARD		
PART I - INITIATION OF REQUEST		
THRU:	TO:	FROM:
1. ORGANIZATION CODE	2. ORGANIZATION TITLE	
3. MEASUREMENT CODE	4. OPERATION DESCRIPTION	
5. REASON(S) FOR REQUEST		
6. REQUESTED BY (Signature, Title & Extension)		
7. REVIEW APPROVED BY (Signature, Title & Date)		
PART II - ACTION ON REQUEST		
THRU:	TO:	FROM:
1. STANDARD WAS: <input type="checkbox"/> VERIFIED <input type="checkbox"/> REVISED <input type="checkbox"/> WITHDRAWN <input type="checkbox"/> NOT REVIEWED <input type="checkbox"/> OTHER		
2. DESCRIPTION OF ACTION TAKEN		
3. REVIEWED BY (Signature, Title & Extension)		4. REVIEW APPROVED BY (Signature, Title & Date)

STANDARDS REVIEW CHECKLIST

1. STANDARD NUMBER

2. STANDARD TYPE

3. ORGANIZATION

4. DATE

5. REVIEW ITEMS

ACCOMPLISHED

YES

NO

a. METHODS CONTENT REVIEW WITH OPERATING OFFICIAL (*Element By Element Check For Currency.*)b. REVIEW OF TIME VALUES FOR ENGINEERED ACCURACY (*Maximum Use Of Standard Time Data Is Recommended.*)

c. REVIEW OF PERSONAL, FATIGUE, AND DELAY (PF&D) ALLOWANCE.

d. REVIEW OF OCCURRENCE FACTORS (*Tangible, Dated Evidence Of Review Is Required.*)

e. REVIEW OF COUNT PROCEDURES.

f. WORKLOAD UNIT END ITEM COUNT CODE.

g. CRITICAL WORK UNIT (*High Earned Hour.*)h. REMARKS: (*Any Item a - g Checked in "No" Column Must Be Justified. If Any Item Requires Change, Furnish Explanation of Change. Enter Justification If Standard Does Not Meet Engineered Criteria.*)

SAMPLE

APPROVAL

SIGNATURE OF ANALYST/TECHNICIAN

SIGNATURE OF WORK MEASUREMENT SUPERVISOR

CHAPTER 3

METHODS AND STANDARDS PROGRAM EVALUATION AND REVIEW GUIDE

3-1. Purpose. This chapter provides guidance and furnishes criteria for evaluation and review of the M&S Program within AMC.

3-2. Objectives. The objectives of the M&S Program Evaluation and Review Guide are--

- a. To provide consistency in the comprehensive review of the AMC M&S Program through a standardized approach for evaluation.
- b. To provide recommended improvements, as applicable, for each program element reviewed.
- c. To identify program strengths and weaknesses.

3-3. Policies. a. This M&S Program Evaluation and Review Guide will be used by--

(1) The MSC Resource Management organizations and AMCMEA in conducting M&S Program Reviews at all subordinate installations and activities.

(2) Installation Commanders:

(a) As the means to assess implementation and continuity of their M&S Program.

(b) To identify problem areas in the application and utilization of M&S data as a management tool so they can take corrective action.

b. The AMCMEA and the MSCs may develop their own format for the M&S Program Review Report. However, the report will contain a summarization of the status, areas of concern, and any recommended improvements for each of the M&S program elements described in this chapter. A numerical evaluation or rating scheme will be optional.

3-4. Responsibilities. a. The AMCMEA will--

(1) Review MSC M&S Program Review Schedules and arrange to participate as a monitor on a random sample basis at their installations to gauge the status of the M&S Program throughout AMC.

(2) Conduct M&S Program Reviews as deemed appropriate.

(3) Notify the MSCs within 30 days of the date of an MSC scheduled M&S Program Review of its intention to participate in the MSC review. Officially notify the MSCs that AMCMEA will conduct a M&S Program Review within 60 days.

(4) Study all final M&S Program Review Reports and monitor recommended followup actions.

b. The MSC Resource Management organizations with an established M&S Program will--

(1) Develop an installation M&S Program Review Schedule to provide for onsite installation review every 2 years.

(2) Provide AMCMEA, AMXME-M and AMXME-D, an action copy and AMXME-I an information copy of the review schedule.

(3) Provide a team chief for M&S Program Reviews.

(4) Notify installations of the review schedule.

(5) Conduct the M&S Program Review and prepare a M&S Program Review Report. Provide the report concurrently to the installation reviewed and to AMCMEA.

(6) Followup as necessary on the review team recommendations and directed actions.

(7) Request MSC Program Managers of various functions participate on the review team as the need arises.

c. Each Installation Commander will--

(1) Comply with the provisions of this regulation and maintain an effective M&S Program as an integral part of the managerial system of the installation.

(2) Monitor and appraise the M&S Program within the command using this chapter as a guide.

(3) Apprise functional directors or staff offices of the M&S Program features that are important for successful implementation.

3-5. Review planning. The M&S Program Review should provide assistance, be constructive, and furnish the commander with recommendations that will improve his program. The following considerations should be made in conducting planning for the M&S Program reviews:

a. Establishment of a review schedule. The MSC HQ will schedule activities for review every 2 years as a minimum. The AMCMEA may monitor but will not normally conduct M&S Program reviews; however, at the Director's discretion, AMCMEA may schedule an AMCMEA-level review. The MSCs will evaluate the following items in the establishment of the review schedule:

(1) Commander's invitation. A commander may request that his MSC HQ conduct a review to determine the status of the M&S Program at his installation and to recommend actions to improve the program.

(2) The AMC Installation M&S Program status report. Analysis of the annual report provides considerable insight into the status of the M&S Program at the various installations.

(3) Known problem areas. Various other reports, such as Inspector General, U.S. Army Audit Agency, General Accounting Office, and Comptroller evaluation surveys, frequently highlight problem areas which require prompt and comprehensive attention.

(4) Previous visits and program reviews. When previous visits to an installation reveal serious shortcomings in the M&S Program, schedule a followup review.

b. Announcement of reviews. Advance notice of M&S Program reviews will encourage the commanders to perform an evaluation of the program. Since reviews usually improve programs, this action should, in itself, provide improvement. In any event, it should provide for correction of minor problems thereby allowing the review team to devote more time to complex issues.

c. Selection of the review team.

(1) The review team for an MSC level program review will primarily consist of personnel selected from within the MSC Resource Management organization. However, you may request representatives from the MSC or installation functional organizations participate on the team as the need arises.

(2) An AMCMEA M&S Program Review team will consist primarily of personnel from AMCMEA. Request personnel from functional and Resource Management organizations from various MSCs to supplement this team if needed.

3-6. Conduct of the review. It is essential to a successful program review that each team member be fully aware of his responsibilities. These responsibilities are as follows:

a. Team Chief is responsible for--

(1) Assembling or contacting the members of the team that will review data furnished by the organization and define the approach, procedures, and methods necessary to establish an overall review plan.

(2) Conducting an entrance interview with the installation commander or deputy and those members of the installation staff that the commander deems appropriate. The team chief will explain the team's purpose, outline the scope of the visit, and specify those functional activities identified for review.

(3) Reviewing and completing an overall evaluation of each of the M&S Program review team members working papers and recommended improvements.

b. Individual team members are responsible for--

(1) Using this evaluation guide to determine the utilization of M&S data within the management system in their assigned areas.

(2) Conducting an entrance and exit interview with functional director or staff office chief of the organizational element reviewed as required.

(3) Following the format and criteria of the guide in maintaining an objective approach.

(4) Developing working papers that show the extent of analyses made and conclusions reached which identify problem areas, recommended improvements, as well as program strengths, for each assigned program element reviewed.

(5) Maintaining coordination with local M&S personnel during the review.

(6) Providing the team chief with the evaluation of reviewed areas for consolidation into the overall evaluation report by close of business on the day prior to the exit interview. This evaluation will include a list of all personnel contacted (by name, title, and organization) and a short synopsis of the overall program implementation within the reviewed organization.

(7) Preparing and providing a complete report of recommended improvements, as well as making constructive comments on strengths or weaknesses revealed during the program evaluation, for incorporation into the formal written report of the review by the team chief.

3-7. Exit interview. An oral presentation will normally complete the onsite program review. The review team chief will--

a. Brief the installation commander or his deputy and selected staff at the exit interview on the results of the review.

b. Forward the formal written M&S Program Review Report concurrently, to the commander of the organization reviewed and to AMCMEA, not later than 45 days after the review. The report will be per paragraph 3-3. The cover letter forwarding the report to the commander of the reviewed organization may also establish a requirement to submit a plan of action for implementation of review team recommended improvements or of counter-proposal improvements suggested by the installation. It may also propose a time period for followup action.

3-8. Synopsis of M&S Program administrative review elements. a. General.

(1) Orientation. It is essential that each supervisor and employee concerned with or affected by the M&S program be aware of the objectives of the program and the manner in which we will implement it. The adequacy of the orientation has a direct relationship with the success of the program. When applicable, include employee labor organizations in the orientation and keep them informed on the progress of the program. Orientation of personnel at all levels is a continuing process. Changes in program goals, procedural improvements, and new employees are some of the factors which require that M&S orientation be a continuous effort. The intent of this element is for the review team to determine the extent to which the personnel have been apprised of the M&S Program.

(2) Implementation plans. Formalization of the M&S Program requires a local implementing regulation or a supplement to a higher headquarters regulation, and a plan of action to include an analysis to determine feasibility of standards development in specific areas. These must reflect what we will cover with the various categories of standards, the end items or functions considered for increased coverage, how we will operate the program, and what coverage we expect. These basic documents provide a foundation for other review elements.

b. Administrative staff.

(1) Staffing. Staffing is essentially a threefold effort. The first step is the authorization of manpower spaces in accordance with this regulation and based upon requirements identified in the POA. The second is the maintenance of that level of M&S personnel on board with a job classification which will provide for adequate recruitment, selection, and retention of qualified analysts. Last is the proper utilization of M&S analysts full time on M&S tasks such as work measurement standard setting, standards review, and methods improvements which is indicative of the priority afforded the program.

(2) Training. Training of personnel in the program must consist of both formal and on-the-job training. Training courses and specific job training assignments should be part of each analyst's personal career plans. Funds budgeted for formal training are indicative of the emphasis placed upon training needs. Records and schedules of training (to include pace-rate training) reflect the care with which personnel are being trained to become qualified work measurement analysts and to maintain their proficiency.

c. Methods improvements/methods studies. Methods studies are prerequisites to standards development. The MSCs must review methods prior to establishment of standards. As a minimum, they must document the work operation as performed at the time of the standard setting. This is essential in order to detect method changes when the PE of an area is consistently out-of-tolerance and to assure recording of benefits from methods improvement studies. The acceptability of proposed methods improvements by supervisors is an indication of the acceptance by the operators. Include comments that reflect the commanding general's decision concerning reasons for nonacceptance or nonimplementation of proposed improvements.

d. Standards.

(1) Coverage. Planned standards coverage should be representative of where (by mission or function) it is most economical/feasible to establish standards. The POA should take into consideration current/planned resources (personnel, both in M&S and functional/mission area, facilities, equipment, and funding along with the planned workload). The MSCs must fully document the POA and reflect the level of standards coverage, by category, and the impact (in man-hours) on M&S staffing in terms of analyst utilization. The results of comparing actual coverage (by category) to POA data will be indicative of the progress against the POA.

(2) Quality and accuracy. Determine the overall validity of the established standards through review of standards files and procedures by which currency is ascertained. Examine a random sample of standard time studies to assure validity of the prescribed method and compliance with

quality and procedural specifications of this regulation. When you use "local" standard time data, review the technique and supporting information for deriving the standard element. There is no specific life span on standards; however, there is a necessity to review established standards upon request of a cost center supervisor. In addition to these reviews, the operating procedures will call for review of standards for active jobs when performance reports indicate a need or there is a change in methods. Obsolete standards can erode not only the supervisor's confidence, but also that of the worker's in the value of the program. Backup files for standards should provide a complete history of the standards. Support all revisions to standards with evidence of quality or work content changes. In addition to the items listed in the element, make a determination of the consistency among standards. For example, are allowances applied uniformly, are standards properly categorized, are sample sizes derived in a standard manner? These are areas for comments in the report.

3-9. Synopsis of M&S Program utilization review elements. a. Work planning and control. This is the design and use of a systematic procedure for establishing a plan of activity and coordinating the available resources to secure the desired management goals. To be successful, the work planning and control system must achieve the three elements of planning, progress reporting, and corrective action. While the broad aspects of the planning and control encompass the other areas under the element of utilization, the determination desired here is twofold; first, the existence of a system for the management of resources, and second, the utilization of work measurement data in that system. In many instances, an overall system for an installation or command will not be possible, but the individual organizations, even those of staff stature, should have some method of managing resources (personnel and funds, particularly). There should be an office procedure for controlling flow of work, estimating, making work assignments to action officers, and reporting progress and expenditure of effort against specific tasks. The use of standards in estimating the time required to accomplish workload in the organization should be apparent during review of the system.

b. Performance improvement. It is necessary that the operating supervisors be queried on their usage of, and confidence in, the performance reports. The overall procedure for L&P reporting should provide for distribution of a report to the operators for analysis and corrective action. The MSCs should require supervisors to provide justification and corrective actions taken as part of the improvement system. It is also necessary to determine how work measurement provides an input to the labor and performance report. Supervisors, with assistance from M&S analysts upon the supervisor's request, must be responsible for correcting out-of-tolerance performance. Furthermore, supervisors must be responsible for informing M&S personnel of changes in method layout or workload that affects time standards.

3-10. Synopsis of staff support review elements. a. Manpower management. A basic use of work measurement data is to support manpower resource requirement determination. Time standards developed should be capable of reflecting required hours in terms of workload. The MSCs will make a determination as to the extent that work measurement data are integrated into the manpower management/productivity programs such as CA, ER, MS-3, and manpower survey, and the degree to which it has been accepted by these programs. The MSCs will provide work measurement data in a format which will facilitate the forecasting of manpower resource requirements during the budget process.

b. Resources management. It is necessary to determine the extent of utilization of work measurement data within the budgeting process to justify manpower resource dollars, as a means of portraying organizational performance effectiveness in the quarterly review and analysis, and for the development of unit cost. Review and analysis organizations should provide for followup on the implementation of methods improvements, productivity increases, and other cost reduction actions attributable to the M&S Program. In addition, these offices should insist upon the application of work measurement data for inclusion in organizational review and analysis reports.

c. Automated data systems support. In order that M&S data be available to the functional managers in a timely manner, it is necessary to provide a functionally-oriented automated data system for the collection and dissemination of work measurement reports. The system should provide data to the functional manager in a format that satisfies his operating needs as well as his reporting requirements to higher headquarters. This provides a means for timely correction of erroneous data and for the programming of new or changed data requirements to satisfy functional managers. The work measurement reporting system should provide manpower utilization and performance data to manpower personnel in a format that provides for weekly control.

3-11. Review agenda. a. The agenda will include the review and evaluation of M&S program elements as follows:

(1) Program orientation, implementation plan, and local implementing regulation/policy/guidance.

(2) Staffing, job classification, grade structure, and utilization of analysts full time on M&S-related tasks.

(3) The M&S required training program.

(4) Documentation of completed methods studies, including acceptance and followup action.

(5) M&S Program validated savings.

(6) Standards coverage, including the quality and accuracy of the standards, and an evaluation of progress in relation to the current activity POA.

(7) Resources management support and validation of M&S data used for stabilized rates, budget preparation, and for determining costs.

(8) Automatic data processing support to provide managers with usable and timely management data.

b. The MSCs should evaluate mission and functional activities on the utilization and integration of work measurement standards data for--

(1) Management control.

(2) Stabilized rates.

(3) Manpower management (CA, MS-3, ER).

(4) Work planning and control.

(5) Work center performance improvement.

c. The M&S analysts should review the current L&P system to determine accuracy of L&P reported, L&P input by individual, and the extent of training and feedback information provided to supervisors. The M&S team chiefs should present the results of the review to the commander and selected staff during the exit interview.

3-12. Documents and documentation requirements. a. Files should be available containing complete methods analysis and work measurement standard studies for the installation.

b. Background data on method and procedure studies performed as general management improvement actions, should be available.

c. The MSCs should maintain copies of all locally developed work measurement guidance, to include all regulations, circulars, pamphlets, and

any correspondence or other evidence reflecting the commander's M&S policy, including reports/printouts utilized by organizations for management purposes.

d. Rosters of non-M&S personnel, who have received M&S orientation and L&P training during the past 2 years, should be available. Records must contain the following:

- (1) Name.
- (2) Grade.
- (3) Job title.
- (4) Organization.
- (5) Type of training received.
- (6) Date and length of training.

e. Records should also indicate formal classroom and on-the-job work measurement or related training provided to personnel assigned to the M&S Program, to include data items above.

f. Other items required are--

- (1) Documentation of all cost savings actions resulting from management improvements established by the M&S Program for the past 12 months.
- (2) Documentation of manpower savings resulting from the M&S Program.
- (3) The previous and current year's POA.
- (4) A copy of the command organizational chart and name and phone number of a point of contact during review.
- (5) A list containing the names and telephone extensions of key organizational personnel.
- (6) A map and/or guide reflecting installation layout, pinpointing major areas of interest (eating facilities, security, directors' offices, etc.).

3-13. Installation responsibilities. a. Approximately 30 days prior to the date of a scheduled M&S Program Review, the installation Resource Management

organization will designate a point of contact. At least 20 days prior to the review, the resource manager will furnish the reviewing organization the name, office symbol, and telephone number of the individual designated.

b. The activity under study will have data requirements as detailed in paragraph 3-12 available to team members upon arrival. They will make the following arrangements for the review team:

- (1) Housing (hotel-motel-BOQ/accommodations).
- (2) Transportation.
- (3) Separate meeting/workroom.
- (4) Clerical support.
- (5) Assignment of personnel to accompany/direct review team members.
- (6) Establishment of entrance and exit interviews with installation commander.

The proponent of this regulation is the U.S. Army Materiel Command. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) to the Commander, U.S. Army Materiel Command, ATTN: AMCRM-Z, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001.

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APPENDIX A

REFERENCES

A-1. Required publications.

a. DOD Directive 5010.31, Department of Defense (DOD) Productivity Program (cited in paragraphs 1-4, 1-5, 1-8a(1), and 1-8c(1)).

b. DOD Instruction 5010.15-1-M, Standardization of Work Measurement (Basic Volume) (cited in paragraphs 1-4, 1-7b, and 1-7c(1)).

c. DOD Instruction 5010.34, Productivity Enhancement, Measurement and Evaluation Operating Guidelines and Reporting Instructions (cited in paragraphs 1-4, 1-5, 1-8a(1), and 1-8c(1)).

d. DOD Instruction 5010.37, Efficiency Review and Resource Requirements Determination (cited in paragraphs 1-4).

e. AR 570-5, Manpower Staffing Standards System (MS-3) Program (cited in paragraphs 1-4, 1-5, and 1-6(b)).

A-2. Related publications. Related publications are merely sources of additional information. The user does not have to read them to understand this regulation.

a. AR 5-20, Commercial Activities Program.

b. AR 5-16, Army Supplement to Defense Regional Interservice Support (DRIS) DOD 4000.19R.

c. AR 37-55, Uniform Depot Maintenance Cost Accounting and Production Reporting System.

d. AR 37-110, Budgeting, Accounting, Reporting and Responsibilities for Industrial Funded Installations and Activities.

e. AR 335-15, Management Information Control System.

f. AR 420-17, Real Property and Resource Management.

g. AR 570-4, Manpower Management.

h. MIL-STD-1567A, Military Standard Work Measurement.

i. Engineered Performance Standards for Facilities Engineering and Estimating handbooks (Army TB 420 Series).

j. The AMEC Course Books; Defense Work Methods and Standards, Volumes I and II; Army Performance Oriented Reviews and Standards (APORS); Manpower Staffing Standards System (MS-3); Defense Work Measurement Standard Time Data; and related courses.

A-3. Prescribed forms.

- a. Work Measurement Plan and Schedule, DD Form 2048 (figure 1-1).
- b. Request for Review of Work Measurement Standard, DD Form 2038 (figure 2-1).
- c. Standards Review Checklist, DD Form 2039 (figure 2-2).

A-4. Referenced forms.

- a. Work Measurement Time Study Worksheet (Snapback/Continuous Method), DD Form 2042.
- b. Time Study Record, DA Form 5275-R.
- c. Operational Audit Data, DA Form 5277-R.
- d. Work Sampling Record, DA Form 5278.
- e. Installations productivity savings report.
- f. The MSC developed or locally developed forms for internal reporting.

APPENDIX B

M&S SAVINGS VALIDATION PROCEDURES

The M&S personnel will--

- a. Make documented independent methods improvement studies.
- b. Obtain subfunctional chief's acknowledgment on methods prior to the initiation of methods improvement.
- c. Develop new/revised standards based on methods improvement, as applicable, and take necessary action to implement new/revised standards.
- d. Secure subfunctional chief's acknowledgment of new/revised standards or memorandum for record that the chief was properly advised.
- e. Furnish copy of methods sheets and standards to the following:
 - (1) Chief, Production Planning and Control (PP&C) function or equivalent.
 - (2) Director, functional area in which the method/standard was established.
- f. Prepare and submit a savings analysis to the installation resource management organization for review/approval. This analysis should include a tracking of performance against the new standard in the functional area for a 3-month period (if possible, this period will be continuous).

GLOSSARY

Section I. ABBREVIATIONS

ALMC	U.S. Army Logistics Management College
AMC	Army Materiel Command
AMCCOM	U.S. Army Armament, Munitions and Chemical Command
AMCMEA	U.S. Army Materiel Command Management Engineering Activity
AMEC	U.S. Army Management Engineering College
AR	Army Regulation
CA	commercial activity
CAT	category
DA	Department of the Army
DESCOM	U.S. Army Depot System Command
DOD	Department of Defense
ER	efficiency review
GTT	group timing technique
HQ	Headquarters
L&P	labor and production
MS-3	Manpower Staffing Standards System
M&S	Methods and Standards
MSC	major subordinate command
MTM	methods-time-measurement
OP	operation
PE	performance efficiency
POA	Plan of Action
PP&C	Production Planning and Control
TECOM	U.S. Army Test and Evaluation Command

Section II. TERMS

AMC M&S PROGRAM TERMS AND DEFINITIONS

Actual standards coverage. The total actual manpower reported as covered by standards.

Actual man-hours. All man-hours, military and civilian, reported against a cost account and for which labor costs must be applied.

Direct labor. Productive labor which can be reasonably and consistently related directly to service performed, or to a unit of work being repaired, manufactured, or processed, or to work which alters the composition, condition, conformation, or construction of a product.

Earned man-hours. The man-hours credited to the cost account at the standard hours per work unit for the work units accomplished; calculate by multiplying time standards by the number of work units (work counts) accomplished. Also includes credit for man-hour allowances developed by prescribed techniques to cover work effort not relatable to any work unit.

Engineered standards. (CAT I) A series of observations and an analysis of the performance of work or a synthesis of the elements of work resulting in a standard time for a recorded method, meeting specified statistical reliability (10 percent absolute accuracy and 90 percent confidence) leveled for performance and adjusted for authorized allowances. Develop engineered standards through the use of time study, predetermined time systems, standard time data, rated work sampling, or any combination of these techniques that will give a comparable level of accuracy. These time standards are further defined as "the time required by a trained worker, or a group of workers, working at a normal pace, to produce a described unit of work, of an acceptable quality, according to the prescribed method under specific working conditions."

Indirect labor. Work which renders services necessary to production, the cost of which cannot be assessed against any part, process, or group of parts or processes accurately or without undue effort and expense. The labor expended, necessary to production, which does not alter the construction or composition of the finished product.

Man-hours worked. The productive man-hours (exclusive of leave) charged to a cost account through the labor distribution system. Includes all man-hours available for work regardless of the fact that local management may record time against delays, lack of work or other situations interfering with performance of tasks for local information.

Measured hours. Man-hours worked, for which a standard/man-hour allowance has been developed.

Methods and standards (M&S). A descriptive term used which refers to the work measurement portion of resource management.

Nonengineered standard. A standard which does not meet the criteria of an engineered standard. In addition to the work measurement techniques data, nonrated work sampling, and technical estimates result in non-engineered standards.

Normeasurable areas. The functions/operations of an organizational element, organizational subelement, or field element for which no final outputs and/or corresponding man-year inputs can be quantified.

Pace-rating. Process whereby an analyst evaluates observed operator performance in terms of a concept of normal performance. Also referred to as performance rating.

Performance efficiency. A ratio of earned man-hours (should-take time) to actual man-hours (did-take time) (applied against the work units which accounts for those earned hours), usually expressed as a percent; i.e., man-hours earned divided by man-hours worked.

Predetermined time system. An organized body of information, procedures, and techniques employed in the study and evaluation of manual work elements. Express the system in terms of the motions used, their general and specific nature, the conditions under which they occur, and their previously determined performance times.

Production (work) planning and control. Scheduling of manpower, materials, and equipment, using load times, work measurement data time standards, delivery dates, workloads, and similar data to efficiently and economically accomplish production by planning for projected outputs.

Savings. Determine savings (i.e., reduced expenses) by comparing the before and after costs of a function/operation as a result of implementing a productivity improvement project. The savings must be actual, budgeted funds which reflect the benefiting appropriation and are sustained by auditable records.

Standard cost. Cost estimated or planned in advance which would be incurred in making a product or rendering a service, under specified conditions. Base this on carefully planned engineering specifications and methods or cost experience as to material, labor, facilities, and services requirement.

Statistical standard (CAT II). A standard time developed from statistical analysis of past performance data expressed as man-hours per work unit.

Summary standard. Standards developed for performance evaluation at the division, directorate, or higher level by functional and staff managers. They are derived by summarizing detailed standards.

Time standard. The time required by a trained worker, or a group of workers, working at a normal pace, to produce a described unit of work.

Work measurement. That portion of the work management program which utilizes specific techniques of methods and standards studies for improving productivity, standardizing work processes, and measuring work by ratio of man-hours to work produced. It includes engineered standards, statistical standards, technical estimates, work sampling, staffing yardsticks contained in DA staffing guides, empirical standards based on man-years, and other techniques used to measure the amount of work performed in terms of manpower effort expended. It provides a standard of performance for work of an acceptable quality to improve operations, increase production, and conserve resources.

Work unit. A countable and tangible expression of output which can be identified and adequately described for the purpose of work measurement and/or cost accounting.